Office of Planning and Research
1400 Tenth St.
Sacramento, CA 95814

December 17, 2008

The Department of Water Resources (DWR) has prepared the attached Addendum to the EIS/EIR and Supplement for the Environmental Water Account program (EWA). For 2009, the water transfers portion of the EWA will be provided specifically by means of the 2009 Drought Water Bank (DWB) to assist in replacing water lost to regulatory curtailments as aggravated by the current drought emergency. The Governor's Executive Order and Proclamation of Drought Emergency that directed establishment of the DWB intends that the transfer water be available to State Water Project and Central Valley Project contractors and other water agencies that are also affected by reductions in deliveries and water supply by the current drought. The addendum sets forth and discusses the minor and technical changes in the EWA that will occur by using the DWB and finds that they create no significant adverse impact on the environment.

This Addendum is being filed and circulated for public review and comment, even though, under California Environmental Quality Act (CEQA) Guidelines Section 15164(3), public review is not required. In so doing, DWR wishes to go beyond the requirements of CEQA by providing information and soliciting input that may further inform any final decision DWR may make on use of the proposed 2009 Drought Water Bank as the transfer vehicle under the EWA and of the EIS/EIR and Supplement prepared and certified for the EWA.

DWR will be accepting comments until close of business January 16, 2009. Those wishing to provide comments should send them to:

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Addendum to the

Environmental Water Account

Environmental Impact Statement/Environmental Impact Report

http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=107

Re: 2009 Drought Water Bank Transfers

State Clearinghouse #1996032083

Prepared by the State of California

The Resources Agency

Department of Water Resources

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Introduction

This addendum has been prepared for the EIS/EIR (2004) and Supplement (2008) for the Environmental Water Account (EWA). It notes and discusses three minor changes to the EWA project as analyzed.

The EWA is an existing and ongoing CalFED program that seeks to increase protection to the fish resources of the Bay-Delta estuary beyond the protections afforded by a regulatory baseline identified in the 2000 ROD for the CalFED program through operational curtailments of State Water Project (SWP) and Central Valley Project (CVP; collectively Project) operations beyond that baseline at no net cost to the Project deliveries and supply. The regulatory baseline was determined by the standards in the 1994 Bay-Delta Accord, as incorporated into Project operations and in the Project descriptions included in No Jeopardy Biological Opinions promulgated in 1995 under the federal Endangered Species Act (ESA) for Project operations. EWA operational curtailments include reductions in pumping, increases in flow through the Delta, and

changes in the flow regime within Delta channels. The primary means for compensating for delivery reductions in Project water to the Project contractors on account of the curtailments is through transfers of up to 600,000 acre-feet per year of non-Project water.

Thus, two key features of the EWA are:

(1) Reductions in water deliveries resulting from Project operation curtailments beyond the water costs of the regulatory baseline; and
(2) Replacement of water supplies lost to the Project on account of these curtailments from non-Project sources through the acquisition and transfer of non-Project supplies.

The EWA originally provided that curtailments for additional fish protection beyond the regulatory baseline would be determined by the three Management Agencies (US Fish and Wildlife Service, National Marine Fisheries Service, and Department of Fish and Game). However, such curtailments have recently been pre-empted and imposed on the Project instead by the Federal District Court as an injunctive remedy under the federal ESA, with no provision, however, for the replacement of lost water supplies. Along with this asymmetrical, uncompensated application of curtailments beyond the regulatory baseline, two years of statewide drought and the prospect of a third year, were addressed in the summer of 2008 in an Executive Order issued by the Governor and in a subsequent Governor's Proclamation of Drought Emergency for the Central Valley. In these documents, the Governor called for increased water transfers and in particular the establishment of a Drought Water Bank for 2009 to alleviate the reduction in deliveries and water shortages.

The 2009 Drought Water Bank (DWB) thus will be the mechanism for acquiring and transferring water to replace Project supplies lost and that will be lost due to the judicially mandated operational curtailments, aggravated by the conditions of drought. These transfers will not come close to making up the mandated losses below the

regulatory baseline. Nor will they be at no cost to Project contractors. This source of water must be paid for by its recipients, and no offset or credit is planned to be given for losses due to the imposed curtailments.

In addition, the DWB acquisitions will be available to users others than SWP and CVP contractors. In this sense, the purpose of the EWA transfers is being generalized on account of the dry conditions to all water users suffering curtailments, not just Project contractors; but the essential purpose of the transfers program remains the same: the need to replace reductions in accustomed water deliveries and supplies by water transfers. Although the DWB is not restricted to SWP and CVP contractors, the fact that Project facilities will be used in securing or delivering the water under the DWB means that the great majority will go the SWP and the CVP service areas; as does the fact that Project contractors represent the vast majority of the state's population.

The EWA originally looked to selected areas in the Central Valley for transfer water supplies, but only because at the time they represented the location of willing sellers. There is nothing in the EWA that intended to preclude looking to sellers in other similar areas of the Central Valley, and one purpose of this Addendum is to assess those other areas that appear to be available for transfers in 2009 that were previously unavailable. Of course, as the EWA's exclusive mechanism in 2009 for securing replacement water for curtailed operations through transfers, the DWB is limited to the maximum 600,000 acre-feet analyzed in the EIS/EIR for the program.

There are three changes and additions proposed by the Department of Water Resources (DWR) in the DWB that differ from the Flexible Purchase Alternative project described in the EWA EIS/EIR. DWR, acting as Lead Agency, has determined that none of these changes involves new significant environmental effects, a substantial increase in the severity of previously identified significant effects, or substantial changes

in the circumstances under which the project will be implemented. For these reasons, DWR has elected to prepare this Addendum to the EWA EIS/EIR.

The three changes that are discussed in this Addendum are as follows:

1. Change in giant garter snake mitigation in response to the Draft USFWS Biological Opinion
2. Change in the areas from which water may be purchased
3. Change in the areas to which water may be delivered

Following are explanations of each of these changes and the rationale for the determination that they constitute only minor technical changes and additions that involve no new significant environmental effects or substantial increases in severity of previously identified significant effects.

1. Change in Giant Garter Snake Mitigation

As part of the DWB, DWR and US Bureau of Reclamation (RECLAMATION) will implement a series of conservation measures to offset the potential effects of rice crop idling and crop substitution water transfers on the Sacramento Valley populations of giant garter snakes. These measures can be found in conditions in a Draft Biological Opinion issued by USFWS on November 18, 2008. This Draft Biological Opinion includes the following protections for the giant garter snake: 1) exclusion areas from rice crop idling that are known giant garter snake core habitats and habitat corridors, 2) description of rice land best management practices for the giant garter snake, 3) and idled rice crop land limitations of no more than 320 continuous acres, using a checkerboard pattern as the preferred layout.

DWR has prepared a Giant Garter Snake Baseline Monitoring and Research Strategy. The implementation of this Strategy will provide significant contributions towards the

development of a Giant Garter Snake Conservation Strategy for the Sacramento Valley. The Strategy has been reviewed and endorsed by State and Federal agencies and two giant garter snake experts, Eric Hansen and Glenn Wylie. Monitoring and research will be the primary tools to gather information on giant garter snake distribution, life history, and ecology. Monitoring will be designed to assess population structure, distribution, and movement within the Sacramento Valley and determine the existing (baseline) population of study sites. The duration of the monitoring and research study designs will incorporate the goal of including wet, dry, and normal hydrologic years.

Broad monitoring and research goals include:

a. Developing and implementing a monitoring plan for giant garter snake populations in the Sacramento Valley,
b. Monitoring giant garter snake populations for a minimum of ten years (subject to appropriations) using multiple survey methods (e.g., trapping, hand captures, and mark-recapture),
c. Using radio-telemetry and mark-recapture to study habitat use and selection, mortality rates, response to crop idling, and use of rice lands for a minimum of five years, and,
d. Gathering enough data to make recommendations to minimize the effects of crop idling practices on the giant garter snake and make general conservation recommendations to the California Rice Industry Association to update their 1995 publication *Managing Ricelands for Giant Garter Snakes*. Conservation recommendations may include actions that rice farmers could implement to reduce potential impacts to the giant garter snake from rice farming, or actions a rice farmer could implement to increase the habitat value for the giant garter snake.

Specific research goals include:

a. Developing and implementing a radio-telemetry study for a minimum of five years

(subject to appropriations),

b. Quantifying and evaluating the response (*e.g.*, movement patterns and survival) of giant garter snakes to changes in habitat conditions and landscape cropping patterns,
c. Quantifying and evaluating the response of giant garter snakes to crop idling including a specific experimental design to evaluate different block sizes and landscape patterns,
d. Examining the relationship of giant garter snake habitat use in relation to habitat availability and surrounding land use using GIS technologies,
e. Quantifying giant garter snake survival and population fecundity (*e.g.*, number of immature to adults) in relation to changing environmental and habitat conditions and identify variables that may be important correlates of survival and fecundity,
f. Quantifying minimum size of buffer zone between idled rice fields and suitable habitat, and
g. Providing recommendations for adaptive management of giant garter snakes with respect to water transfers.

There are two changes of note from the conservation measures contained in the 2003 EWA EIS/EIR. Both are based on the recognition of new data and changed circumstances since 2003. 1) A change in the idled block size from 160 to 320 acres, and 2) the locations from which water transfers can occur.

The expansion of the block size from 160 acres (1/2 mile on each side of a square) to 320 acres (approximately 3/4 mile on each side of a square) would change the distance a giant garter snake would travel through an idled block by approximately 1/4 mile or 1,320 feet. The original 160 acre block size was largely based on estimates of median home range size. Although the median is a useful number, the home range size of an animal is affected by many variables and may be a misleading indicator of the distance an animal can successfully travel between habitats. Estimates of maximum home range sizes and distances traveled suggest that a 320 acre block is a navigable size for

a giant garter snake. In addition, the seller will be required to maintain baseline water in major irrigation and drainage canals to serve as movement corridors for giant garter snakes.

The expansion of the block size has the potential to expose giant garter snakes to more adverse habitat conditions and potentially increase their exposure to predators. However, constraining idled parcels to a checkerboard pattern in which idled parcels may not completely share a common boundary, maintaining water in main ditches and canals, implementing best management practices, and excluding core habitats and corridors is expected to help reduce the potential impacts to the giant garter snake population to less than significant.

A part of the Giant Garter Snake Baseline Monitoring and Research Strategy will include implementation of a radio-telemetry study to evaluate and quantify the response of the giant garter snake to riceland idling, thereby providing additional data on giant garter snake behavior and ecology. Furthermore, ongoing studies funded through the Ecosystem Restoration Program will also provide data on giant garter snake response to cropland idling and habitat restoration.

The EWA Biological Opinion excluded Yolo County east of Highway 113 from crop idling and substitution actions. Yolo County is known to support the giant garter snake, yet very little data is available on the population size, or distribution within this area. Surveys in 2005-2007, documented snakes at the Yolo Wildlife Area, Conaway Ranch, and Davis Wetlands (Hansen 2008). A giant garter snake Conservation Bank has been established south of Interstate 80 inside the Yolo Bypass and habitat has been created for the giant garter snake within the Yolo Wildlife Area. The area of Yolo County east of Highway 113 will be included in the DWB.

Existing protected habitats within the area and the conservation measures outlined in the DWB, should reduce any potential impacts to the giant garter snake population by

including this area in the DWB.

At the request of the USFWS, the Natomas Basin is excluded from the DWB. This area is currently implementing a Habitat Conservation Plan that include impacts to the giant garter snake.

In summary, DWR is initiating a number of conservation measures to reduce the effect of crop idling and crop substitution actions on the giant garter snake. These actions include requiring rice farmers to follow Best Management Practices as described in the Draft Giant Garter Snake Recovery Plan (USFWS 1999), requiring baseline water in main canals and ditches, minimizing the size of idled parcels, idling parcels using a checkerboard pattern as the preferred layout, and excluding lands adjacent to habitat corridors and lands with known populations. Together, these actions are expected to reduce any impacts to the giant garter snake population to less than significant.

2. Change in the areas from which water may be purchased

The Supplemental EWA EIS/EIR study area includes areas of California that might receive benefits from EWA actions or areas potentially affected by EWA because they serve as a site for EWA water asset acquisition, conveyance, or storage. The EWA study area comprises the land and tributaries upstream from the Delta, the Delta, and the CVP/SWP Export Service Area. This is roughly the same study area that will be a part of the Drought Water Bank. The CVP/SWP Export Service Area is defined as those lands that receive SWP and CVP water via the south Delta pumping plants, as well as reservoirs that are used for EWA asset management.

The overall EWA study area includes areas that may be directly or indirectly affected by potential EWA acquisitions. These areas include the same areas found as part of the DWB. Those areas that may participate in the DWB, but are not specifically described in the EWA documentation are located adjacent to those areas that are described and

include the same ecosystem features, and the same species composition. Thus the analysis and conclusions done as part of the EWA document would be the same as any analysis and conclusions that would be done for those areas that are not specifically described as part of the EWA but may be a part of the DWB.

As done in the EWA document, the effects analysis done on fisheries and water quality in the Delta does not depend on the location of the water seller, but on the total amount of water to be transferred via a particular tributary and receiving water body. Thus, fisheries and water quality effects were evaluated based on the largest amount of water that EWA agencies could manage in the Delta for fish actions (approximately 600,000 acre-feet, per the analyses in the EWA EIS/EIR), regardless of whether the specific water sellers could be identified. Therefore, the effects analysis represents a "worst-case scenario" based on the maximum amount of water that may be purchased by the EWA agencies. The circumstances mentioned above will be exactly the same for the DWB.

The EWA document evaluated impacts by regions and does not analyze impacts as a complete list of specific areas. Some of the regions described in the EWA EIS/EIR include the following:

a. Agricultural lands in the Sacramento Valley (Butte, Colusa, Glenn, Placer, Sutter, and Yolo counties) and the San Joaquin Valley (Kings, Fresno, Kern, and Tulare counties) in which farmers participate in crop idling and/or crop substitution; and

b. Groundwater basins that participate in acquisition of EWA water via groundwater substitution, stored groundwater purchase, or groundwater storage.

c. Areas upstream of the Delta include the Sacramento Valley, the Sacramento River, and its tributary rivers: Feather, Yuba, and American rivers. Because the San Joaquin River also flows into the Delta upstream from the Delta pumps, the portions of the San Joaquin Valley that are drained by the San Joaquin River are also

considered to be “upstream” from the Delta. The Merced River, a San Joaquin River tributary, is also part of the Upstream from the Delta region.

The areas described above are the same or similar in nature to the areas that are a part of the DWB.

Table 1 lists agencies (those that are covered in the EWA documentation and those that are not) that may be willing to sell water to the DWB along with a maximum amount of potentially available water volumes. DWR would only make purchases from willing sellers. The numbers presented in Table 1 are estimates and do not necessarily reflect the amount of water that would be available in 2009. Generally, these estimates reflect the potential upper limit of available water in order to include the maximum extent of potential transfers in the environmental analysis. Actual purchases would depend on the year type, DWB funding (interested buyers), and the amounts that sellers would ultimately be willing to transfer in 2009. The potential transfers identified in Table 1 may not all occur. All of the potential transfers are in regions identified and analyzed in the EWA documentation.

Table 1			
Potential Sellers (Upper Limits)			
(AF)			
Water Agency (County)	***Stored Reservoir Water***	***Groundwater Substitution***	***Crop Idling/ Substitution***
Upstream from the Delta Region			
Sacramento River Area of Analysis			
*Amaral Ranch (Sutter)		2,000	2,000
Butte WD (Butte and Sutter)		10,000	10,000
*Carter MWC (Colusa)		500	
*Conaway Preservation Group (Yolo)		17,500	14,700
Glenn-Colusa ID (Glenn and Colusa)			70,000
*Goose Club Farms (Sutter)			3,500
*Lewis Ranch (Colusa)		TBD	2,600
*Maxwell ID (Colusa)		1,200	3,000
*Meridian Farms (Butte)		1,000	2,000
Natomas Central MWC (Sutter and Sacramento)		10,000	
*Parrott Investment Company (Butte)			1,500
*Pelger MWC (Sutter)		3,000	2,000
*Pinnacle Land Ventures, LLC (Broomieside Farms) (Sutter)		10,000	
*Pleasant Grove-Verona MWC (Sutter)		7,000	3,000
*Princeton-Cordora-Glenn ID (Glenn and Colusa)		TBD	TBD
*Provident ID (Glenn and Colusa)			
*River Garden Farms (Yolo)		4,500	1,500
*Reclamation District 108 (Colusa and Yolo)		4,000	20,000
*Reclamation District 1004 (Colusa)		50,000	10,000
*Sacramento River Ranch (Yolo)		1,000	1,275
*Sutter MWC (Sutter)			10,000
*Sycamore MWC (Colusa)		2,400	6,360
*Upper Swanston Ranch (Yolo)		8,500	
*Western Canal Water District (Butte and Glenn)		TBD	35,000

Table 1 cont. ***Potential Sellers (Upper Limits)***			
(AF)			
Water Agency (County)	***Stored Reservoir Water***	***Groundwater Substitution***	***Crop Idling/ Substitution***
Upstream from the Delta Region			
Feather River Area of Analysis			
Garden Highway MWC (Sutter)		2,000	
Richvale ID (Butte)			
Sutter Extension WD (Sutter)		5,000	7,000
American River Area of Analysis			
*Placer County WA (Placer)	20,000		
City of Sacramento (Sacramento)		17,000	
Merced/San Joaquin River Area of Analysis			
*Merced ID(Merced)	10,000		

Abbreviations:
GW: Groundwater
ID: Irrigation District
MWC: Mutual Water Company
WA: Water Agency
WD: Water District
TBD: To be Determined

Note: Those agencies with an * are not specifically identified in the EWA EIS/EIR

3. Change in the areas to which water may be delivered

The State Legislature has established legal principles that must be satisfied if the DWB and its participating buyers are to be involved in the purchase or conveyance of water. These legal principles require the buyers to be concerned about the impacts of its water purchases on the water source areas. This concern about possible local area impacts of water transfer makes the buyers an "enlightened consumer" as it enters the water market.

As defined by the EWA documents, the export service area is defined as the area that receives, stores, and uses CVP and SWP water pumped from the Delta. It includes the San Joaquin Valley and CVP/SWP customers in the Bay Area, south central California Coast, and southern California. These areas are similar in nature to those that are a part of the DWB. Any analysis and conclusions done as part of the EWA EIS/EIR will be the same if done for the DWB.

Table 2 identifies potential buyers (those that are covered in the EWA documentation and those that are not) who have indicated interest in participating in the DWB. Not all of these potential buyers may end up actually purchasing water from the DWB in 2009. Buyers' participation in the DWB will be subject to the terms identified in the White Paper (http://www.watertransfers.water.ca.gov/docs/sacvalleyintro09.doc), including meeting a critical needs assessment and having a plan with the goal of 20% reduction in water demand based on conservation efforts.

Table 2	
Potential Buyers (Upper Limits)	
(AF)	
Water Agency	***Amount Requested***
Downstream from the Delta	
Alameda County Water District	20,000
Antelope Valley East Kern Water Agency	28,212
Central Cost Water Authority	15,000
*Contra Costa Water District	20,000
Desert Water Agency	10,000
Dudley Ridge Water District	7,500
*East Bay Municipal Utility District	10,000
Kern County Water Agency	123,333
Metropolitan Water District of Southern California	300,000
Mojave Water Agency	1,000
Napa County Flood Control and Water Conservation District	13,860
Oak Flat Water District	1,000
Palmdale Water District	8,000
San Bernardino Valley Municipal Water District	20,000
San Diego County Water Authority	10,000
San Luis & Delta Mendota Water Authority, which includes:	150,000
Byron Bethany Irrigation District	
Del Puerto Water District	
Eagle Field Water District	
James Irrigation District	
Laguna Water District	
Mercy Springs Water District	
Oro Loma Water District	
Pacheco Water District	
Panoche Water District	
Patterson Irrigation District	
Reclamation District 1606	
San Benito County Water District	

Table 2 cont.

Potential Buyers (Upper Limits)

AF

Water Agency	***Amount Requested***
Santa Clara Valley Water District	30,000
Tranquility Irrigation District	
West Side Irrigation District	
West Stanislaus Irrigation District	
Westlands Water District	
City of Avenal	
City of Coalinga	
City of Huron	
Avenal State Prison	
Broadview Water District	
Banta Carbona Irrigation District	
Tulare Lake Basin Water Storage District	20,000
Walnut Valley Water District	10,000
Upstream from the Delta	
*Bella Vista Water District	2,000
*Dunnigan Water District	2,000
City of Yuba City	2,000

Note: Those agencies with an * are not specifically **I**dentified in EWA EIS/EIR

There are four potential buyers of DWB water that are outside of those identified in the EWA EIS/EIR; 1) Bella Vista Water District, 2) Dunnigan Water District, 3) Contra Costa Water District, and 4) East Bay Municipal Water District(EBMUD). All four of these buyers will not be using the purchased water for any new users or contribute to any level of use above their baseline usage.

The Bella Vista Water District is located in Shasta County and provides water to approximately 5,700 municipal users in the northeast portion the City of Redding and

300 agricultural users (primarily, irrigated pasture). They have a contract with the RECLAMATION for 24,578 acre-feet of water. Over the last five years, they have averaged 20,645 acre-feet. They are potentially requesting 2,000 acre-feet of water from the DWB, approximately 10 percent of their contract amount.

EBMUD provides water to Alameda and Contra Costa counties in the areas surrounding the cities of Richmond, Berkeley, and Oakland. Over the last five years, waster consumption has averaged 209,525 acre-feet. Approximately 65 percent of EBMUD water use comes from residential usage and approximately 25 percent is used by commercial and industrial users. EBMUD does not provide water to any agricultural users. EBMUD is potentially requesting 10,000 acre-feet from the DWB, less than 1 percent of their average water use.

The Contra Costa Water District (CCWD) provides water to primarily industrial and municipal users in Contra Costa County. Over the last five years, water consumption has averaged 120,000 acre-feet. CCWD provides less than 100 acre-feet a year to a agricultural users. CCWD is potentially requesting 20,000 acre-feet from the DWB, less than 20 percent of their average water use.

The Dunnigan Water District is located in northern Yolo County and uses contracted water from the CVP delivered from the Tehama Colusa Canal. Over the last five years, they have used an average of 16,000 acre-feet of water annually. The majority of water, approximately 98 percent, goes to agricultural users and the remaining 2 percent to landscaping. The variety of crops within the district includes permanent orchards and vineyards. They are potentially requesting 2,000 acre-feet of water, approximately 15 percent of their average water use.

Conclusion

The use of an addendum to the Supplemental EWA EIS/EIR for the DWB is consistent with CEQA guidelines. The DWB comprises no substantial changes to the analysis done in the Supplemental EWA EIS/EIR. The actions for the DWB are the same as described in the EWA document.

The sellers and buyers as part of the DWB will have asset acquisition amounts that are the same or less than that described in the EWA document. Therefore, any analysis will be the same and any resource impacts will be the same or less. All DWB water transfer actions have been described and analyzed in the EWA documents.

For further clarification on the environmental factors potentially affected by the DWB, a copy of the checklist found in Appendix G of the CEQA Guidelines can be found after the bibliography. Any environmental issues found below in the checklist are explained as part of the addendum.

Bibliography

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U.S. Fish and Wildlife Service, 1999. Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*) U.S. Fish and Wildlife Service, Portland, Oregon. ix+192 pp.

Environmental Checklist Form

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

Symbols ☑ ☐	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant**	**No Impact**
1. AESTHETICS – Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☑	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
2. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☑
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☑
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use?	☐	☐	☑	☐

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
3. AIR QUALITY--Where available, the significant criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☑	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☑	☐	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☑
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☑

The following text (in italics) is excerpted from the EWA DEIS/DEIR, July 2003, pp. 8-16 and if.:

The potential effects on air quality due to groundwater substitution, stored groundwater purchase, and crop idling would not differ by county. Therefore, the effects of the EWA actions are evaluated for the Upstream from the Delta Region as a whole.

Groundwater substitution would require use of groundwater pumps to retrieve groundwater. Groundwater substitution would take place in Glenn, Colusa, Yolo, Butte, Sutter, Sacramento, Shasta, and Yuba Counties. Agricultural users would use groundwater instead of surface water for their water supply. The use of groundwater

would require pumps to lift the groundwater to the surface. Groundwater pumps can be driven by many different means. Table 8-4 shows the estimated NOx and PM10 emissions for a 115 hp pump with electric, propane, and diesel motors, operating under the assumptions described in Section 8.2.1.1. NOx and PM10 emissions are presented because several counties are in nonattainment for ozone and PM10 and NOx is considered an ozone precursor. This information is for comparison purposes, but actual pollutants emitted depend on how the pump is powered, the size of the pump, the efficiency of the well, the length of time the pump is running, and the depth to groundwater.

Table 8-4

Groundwater Pump Emissions by Motor Type

Motor Type	*NOx (lbs/year)*	*PM10 (lbs/year)*
"Dirty" Diesel	*2,544*	*236*
"Clean" Diesel	*2,007*	*236*
Electric	*84*	*5.6*
Propane	*562*	*66*

Source: California Farm Bureau Federation 1999.

These calculations assume that the pump would operate 2,000 hours in an average year. Electric pumps do not emit pollutants at the pump; the source of pollutants can be traced to emissions from the powerplant. Powerplants are given permits based on their maximum operating potential. Although the electricity required to power the groundwater pumps would not be needed under the Baseline Condition, the additional electricity would not cause any powerplant to exceed operating capacity. A majority of power is derived from fossil fuel combusted at powerplants to generate electricity required to run the groundwater pumps. CO2 is the primary pollutant emitted as a result of the oxidation of the carbon in the fuel. NOx and PM10 are also emitted. As mentioned previously, these pollutants are noteworthy because many of the counties in the Upstream from the Delta Region are nonattainment areas for ozone and PM10.

Diesel pump engines emit air pollutants through the exhaust. The primary pollutants from the pumps are NOx, TOC, CO, and particulates (including visible and nonvisible emissions). Pumps that run on propane burn much cleaner than diesel, but still contribute NOx, CO2, VOCs, and trace amounts of SO2 and particulate matter.[6]

The pumps that would be used for groundwater substitution are existing pumps; no new pumps would be installed as a result of this alternative. The pumps have most likely been used in the past and will be used in the future; thus, the pumps are not a new source of emissions. However, groundwater substitution activities would result in use of the pumps at times when they would otherwise not be used.

According to CARB surveys, approximately 74.7 percent of groundwater pump emissions occur between April and September. The project-related emissions, both NOx and PM10, in Sacramento, Yolo, Sutter, Glenn, and Colusa Counties have been accounted for within CARB's inventory as is demonstrated by the fact that the annual average EWA project emissions produced from groundwater pumping would fall below the diesel-fueled groundwater pump emission inventory. (see Table 8-5, pg. 8-18, EWA DEIS/DEIS, 2003) *However, because the project-related emissions would be produced in a nonattainment area, the project would contribute to an existing air quality violation, which is a significant impact. Butte, Shasta, and Yuba Counties exceed CARB's inventory, also producing a significant impact. The mitigation measures listed in Section 8.2.7 would lower emissions to a negligible amount; therefore, these significant impacts would be reduced to a less-than-significant level.*

[6] NOx = Nitrogen oxides, TOC = Total organic carbon, CO = Carbon monoxide, CO2 = Carbon dioxide, VOCs = Volatile organic compounds, SO2 = Sulfur dioxide.

The mitigation measures specified in the EWA DEIS/DEIR for groundwater substitution water transfers are as follows:

8.2.7.1 Groundwater Substitution

If the EWA agencies obtain water from groundwater substitution, increased groundwater pumping would increase NOx emissions. The EWA agencies and willing sellers would work together to implement one, or a combination, of the following mitigation measures that is appropriate to reduce impacts to a less-than-significant level. The mitigation measures will be implemented within the willing seller's air district.

- *EWA agencies will require willing sellers to use only electric pumps.*
- *EWA agencies will require willing sellers to use electric or propane-fueled pumps. For each propane-fueled pump, a diesel engine within the district that is not a part of the EWA must be replaced with a propane or electric pump to 'offset' the emissions from the project-related pump.*
- *EWA agencies will require the willing sellers to purchase offsets to compensate for producing project-related emissions.*

The 2009 DWB intends to implement the last mitigation measure listed above in the following manner. Actual NOx emissions from diesel groundwater pumps will be calculated using actual anticipated operating conditions (i.e., fuel type) and scheduled hours of operation. Emissions of NOx that would have been emitted by farm equipment that would have been used on lands fallowed for water transfers for the 2009 DWB will also be calculated, and these foregone emissions will be used to offset NOx emissions from groundwater pumping. As long as emissions generated by groundwater substitution pumping do not exceed NOx emissions foregone due to land fallowing as part of the 2009 DWB, this impact will be reduced to a less than significant level.

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
4. BIOLOGICAL RESOURCES -- Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☑	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☐	☑	☐
c. Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) or other wetlands through direct removal, filling, hydrological interruption, or other means?	☐	☐	☑	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☑	☐	☐
e. Conflict with any local applicable policies or ordinances protecting biological resources?	☐	☐	☐	☑
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	☐	☐	☐	☑

5. CULTURAL RESOURCES -- Would the project:

a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the California Code of Regulations (CCR)?	☐	☐	☐	☑
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR §15064.5?	☐	☐	☐	☑
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☑
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☑
e. Exceed an applicable Land Resource Development Plan (LRDP) or Program EIR standard of significance?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
6. GEOLOGY AND SOILS – Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
Ii. Strong seismic ground shaking?	☐	☐	☐	☑
Iii. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
iv. Landslides?	☐	☐	☐	☑
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☑
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☑
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☑
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
7. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☑
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☑
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e. Result in a safety hazard for people residing or working in the project area for a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport?	☐	☐	☐	☑
f. Result in a safety hazard for people residing or working in the project area for a project within the vicinity of a private airstrip?	☐	☐	☐	☑
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑
8. HYDROLOGY AND WATER QUALITY – Would the project:				
a. Violate any water quality standards or WDRs?	☐	☐	☐	☑
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☑	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☑
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☐	☐	☐	☑
e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
f. Otherwise substantially degrade water quality?	☐	☐	☐	☑
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☑
h. Place structures within 100-year flood hazard area, which would impede or redirect flood flows?	☐	☐	☐	☑
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☑
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑
9. LAND USE AND PLANNING - Would the project:				
a. Physically divide an established community?	☐	☐	☐	☑
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑
10. MINERAL RESOURCES -- Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☑

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

Symbols ☑ ☐	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant**	**No Impact**
11. NOISE – Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☑
b. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☐	☑
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
e. Exposure of people residing or working in the project area to excessive noise levels for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport?	☐	☐	☐	☑
f. Exposure of people residing or working in the project area to excessive noise levels for a project within the vicinity of a private airstrip?	☐	☐	☐	☑

12. POPULATION AND HOUSING – Would the project:

a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

13. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities and the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?	☐	☐	☐	☑
Police protection?	☐	☐	☐	☑
Schools?	☐	☐	☐	☑
Parks?	☐	☐	☐	☑
Other public facilities?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
14. RECREATION				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☑
15. TRANSPORTATION/TRAFFIC – Would the project:				
a. Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☑
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
e. Result in inadequate emergency access?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
f. Result in inadequate parking capacity?	☐	☐	☐	☑
g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
16. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Board?	☐	☐	☐	☑
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
d. Have sufficient water supplies available to serve the project from existing entitlements and resources or are there new or expanded entitlements needed?	☐	☐	☐	☑
e. Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☑
g. Comply with applicable federal, State, and local statutes and regulations related to solid waste?	☐	☐	☐	☑

Symbols ☑ ☐	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
17. MANDATORY FINDINGS OF SIGNIFICANCE --				
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☑	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☑	☐	☐
c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☑